

WHAT IS CLAIMED IS:

1. A starting clutch, comprising:
a planetary mechanism;
a first clutch for outputting a torque to an outer
5 diameter portion of said planetary mechanism;
a second clutch for outputting the torque to an
intermediate portion of said planetary mechanism; and
a lock mechanism for locking a reactive force from
an inner diameter portion of said planetary mechanism.
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2. A starting clutch according to claim 1,
wherein said planetary mechanism comprises a planetary
gear.
- 15 3. A starting clutch according to claim 1 or 2,
wherein the lock mechanism for locking the reactive
force from said inner portion comprises an one-way
clutch.
- 20 4. A starting clutch according to claim 1,
wherein a multi-plate clutch is used for said first
clutch and second clutch.
- 25 5. A starting clutch according to claim 4,
wherein a piston for fastening said first clutch and
second clutch is integrally provided.

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6. A starting clutch according to claim 4,
wherein a hub of said first clutch becomes a clutch
case of said second clutch.

5 7. A starting clutch according to claim 2,
wherein said starting clutch comprises a case for
covering said element and a clutch case for covering
said first clutch and a bearing mechanism intervenes
between said case and said clutch case.

10 8. A starting clutch according to claim 4 or 5,
wherein a bearing mechanism intervenes between the
clutch case of said first clutch and the hub.

15 9. A starting clutch according to claim 4 or 5,
wherein a bearing mechanism intervenes between the
clutch case of said second clutch and the hub.

20 10. A starting clutch according to claim 2,
wherein a bearing mechanism intervenes between said
case and the planetary gear.

25 11. A starting clutch according to claim 7,
wherein said bearing mechanism is a thrust washer, a
needle bearing or a thrust ball bearing.

12. A starting clutch according to claim 2,

further comprising an output shaft, wherein a bearing is intervened between said output shaft and said planetary gear.

5 13. A starting clutch according to claim 2, wherein the hub of said first clutch is connected to a ring gear of said planetary gear.

10 14. A starting clutch according to claim 2, wherein the hub of said second clutch is connected to a carrier of said planetary gear.

15 15. A starting clutch according to claim 1, wherein said output shaft is connected to said carrier.

20 16. A starting clutch according to claim 2, wherein a base member having a portion which becomes an inner ring of said one-way clutch is connected to a fixed element.

25 17. A starting clutch according to any one of claims 13 to 16, wherein said each member are connected by a spline fitting.

 18. A starting clutch according to claim 2, wherein an outer ring portion of said one-way clutch is formed on the sun gear or the inner periphery portion

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of the member connected to the sun gear.

19. A starting clutch according to claim 1,
wherein the fixed element and the planetary gear are
5 arranged on the outer periphery side of the output
shaft and said base member and said one-way clutch are
arranged on the outer periphery of said fixed element
and, furthermore, said second clutch is arranged on the
outer periphery side of said one-way clutch and said
10 first clutch is arranged on the outer periphery side of
said second clutch, respectively and they are covered
by a case.

20. A starting clutch according to claim 1,
15 wherein the fixed element and the planetary gear are
arranged on the outer periphery side of the output
shaft and said base member and said one-way clutch are
arranged on the outer periphery of said fixed element
and, furthermore, said second clutch is arranged on the
20 outer periphery side of said planetary gear and said
first clutch is arranged on the outer periphery side of
said second clutch, respectively and they are covered
by a case.

21. A starting clutch according to claim 1,
25 further comprising a damper mechanism.

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27. A starting clutch according to claim 1,
wherein the operation of the piston for fastening the

first clutch or the second clutch is by the operating mechanism combined of a lever and a release bearing.

28. A starting clutch according to claim 1,
5 wherein the piston for fastening the first clutch or
the second clutch takes a ball screw as the operating
mechanism.

29. A starting clutch according to claim 1,
10 wherein the piston for fastening the first clutch or
the second clutch takes the release bearing and the
ball screw for pushing down the release bearing as the
operating mechanism.

15 30. A starting clutch according to claim 1,
wherein the piston for fastening the first or the
second clutch operates by oil pressure.

31. A starting clutch according to claim 1,
20 wherein the piston for fastening the first clutch or
the second clutch operates by oil pressure supplied
from a motor-operated pump.

32. A starting clutch according to claim 1,
25 wherein an oil pressure circuit including said motor-
operated pump is provided independently apart from the
oil pressure circuit with an engine as an oil pressure

source.

33. A starting clutch according to claim 1,
wherein the oil pressure circuit with the oil pressure
5 circuit including said motor-operated pump and an
engine pump as an oil pressure source is included in
the same oil pressure circuit and means for detecting
the number of engine rotations and the oil pressure
circuit comprising a valve to be regulated in an
10 opening amount according to the number of engine
rotations detected by said means.

34. A starting clutch according to claim 33,
further comprising:
15 means for detecting oil pressure generated by said
engine pump; and
a control device for regulating the operation of
said motor-operated pump according to oil pressure
generated by said engine pump.

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35. A starting clutch according to any one of
claims 32 to 34, further comprising oil temperature
detection means, wherein a mechanism for regulating the
opening amount of the valve by the detected oil
25 temperature is provided.

36. A starting clutch according to claim 5,

37. A starting clutch according to claim 1,
5 wherein an biasing means is provided for biasing a
frictionally engaging element of the first clutch to
such a degree that a creep torque is generated.

39. A starting clutch according to claim 37 or 38, wherein said biasing means or biasing regulating means is a spring member.

20 41. A starting clutch according to claim 1,
wherein an amplified torque is outputted by the
fastening of said first clutch and said one-way clutch.

42. A starting clutch according to claim 1,
25 wherein an amplified torque having 1 in a ratio of
transmission is outputted by the fastening of said
first clutch and said second clutch.

43. A starting clutch according to claim 1,
wherein the operating mechanism of the first or the
second clutch is arranged on the outer periphery side
of said fixed element.

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44. A starting clutch according to claim 1,
wherein, when the operating mechanism is completely ON,
the first clutch and the second clutch fasten together
and, when the operating mechanism is completely OFF,
10 the first clutch and the second clutch are released.

45. A starting clutch according to claim 1,
wherein the first clutch fastens or slidably moves in a
half operating state intermediate between said
15 completely ON and completely OFF.

46. A starting clutch according to claim 1,
wherein the second clutch slidably moves or is released
in said half operating state.

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47. A starting clutch according to claim 1,
wherein a coupled driving rotational element is
arranged on an outer periphery of said fixed element
and, furthermore, the piston is arranged on the outer
25 periphery.

48. A starting clutch according to claim 47,

wherein an oil passage from said output shaft to said oil chamber through said fixed element and said coupled driving rotational element is provided.

5 55. A starting clutch according to claim 47,
wherein an outer periphery side of said coupled driving rotational element is closed with an oil seal.

10 56. A starting clutch according to claim 47,
wherein the outer periphery of said fixed element is supported by a bearing.

15 57. A starting clutch according to claim 47,
wherein the outer periphery side of said fixed element is supported by a seal bearing.

20 58. A starting clutch according to claim 1,
wherein lubricant is supplied from the output shaft to the first clutch, the second clutch, the one-way clutch, the planetary gear or the like.

25 59. A starting clutch according to claim 58,
wherein a lubricant oil supply hole is provided on said output shaft.

60. A starting clutch according to claim 1,
wherein the lubricant oil supply hole is provided in

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said fixed element.

61. A starting clutch according to claim 59 or
60, wherein a lubricant oil passage which communicates
5 with said output shaft from said fixed element is
provided.

62. A starting clutch according to claim 1,
wherein lubricant is supplied from a gap between said
10 output shaft and said fixed element.

63. A starting clutch according to claim 1,
wherein the inside of the clutch case is immersed in
oil.

64. A starting clutch according to claim 47,
wherein the first and the second clutches are fastened
when the operating mechanism is completely OFF, and the
first and the second clutches are released when the
20 operating mechanism is ON.

65. A starting clutch according to claim 47,
wherein only the first clutch fastens or slidably moves
when the operating mechanism is in a half operating
25 state.

66. A starting clutch according to claim 45,

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wherein a creep is generated by said first or the second clutch slidably moving.

67. A control method of a starting clutch,
5 comprising:

a planetary mechanism;

a first clutch for outputting a torque to an outer diameter portion of said planetary mechanism;

10 a second clutch for outputting the torque to an intermediate portion of said planetary mechanism; and

a lock mechanism for locking a reactive force from an inner diameter portion of said planetary mechanism,

wherein an amplified torque is outputted by the fastening of said first clutch and said one-way clutch.

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68. A control method of a starting clutch according to claim 67, wherein a torque having 1 in a ratio of transmission is outputted by the fastening of said first clutch and said second clutch.

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69. A control method of a starting clutch according to claim 67 or 68, wherein, when the operating mechanism is completely ON, the first clutch and the second clutch are fastened together and, when
25 the operating mechanism is completely OFF, the first clutch and the second clutch are released.

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70. A control method of a starting clutch according to claim 69, wherein said first clutch is fastened or slidably moved in a half operating state intermediate between said completely ON and completely OFF.

71. A control method of a starting clutch according to claim 69, wherein said second clutch is fastened or slidably moved in a half operating state intermediate between said completely ON and completely OFF.

72. A control method of a starting clutch according to claim 67 or 68, wherein, when the operating mechanism is completely OFF, the first and the second clutches are fastened and, when the operating mechanism is completely ON, the first and the second clutches are released.

73. A control method of a starting clutch according to claim 72, wherein said operating mechanism fastens or slidably moves the first clutch only in a half operating state intermediate between said completely ON and completely OFF.

74. A control method of a starting clutch according to claim 70, wherein a creep is generated by said first clutch slidably moving.